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THE SOUTHWEST EARTHQUAKE OF JULY 30, 1925

By

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The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free government.

Sam Houston

Cultivated mind is the guardian genius of democracy. . . . It is the only dictator that freemen acknowledge and the only security that freemen desire.

Mirabeau B. Lamar

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THE SOUTHWEST EARTHQUAKE OF JULY 30, 1925¹

J. A. UDDEN

DISCUSSION OF DATA

On July 30, 1925, the Associated Press dispatches announced the occurrence of an earthquake apparently central in the Panhandle of Texas. It was felt in West Texas, in the eastern part of New Mexico, in the west part of Oklahoma, and in the southwest part of Kansas, and was also sensible in the southeast part of Colorado. Such phenomena are very unusual in this part of the United States, and the writer immediately made arrangements to gather information on this earthquake. Circulars asking for information on observations were mailed to a number of local newspapers in the region, and clipping bureaus were engaged to secure items of information from the public press. Letters of inquiry were also written to several private parties, and a request for local notes on the earthquake was kindly published in the *Dallas News*. As a result of these arrangements, there were received, aside from a few letters, more than three hundred clippings, all bearing on the subject. A perusal of the material shows that there were at hand some 500 separate items from which in most cases inferences could be made on the intensity or nature of the disturbance in seventy-five localities. Of these thirty-five were in Texas, nineteen in Oklahoma, nine in New Mexico, nine in Kansas, two in Colorado, and one in Missouri.

It has occurred to the writer that the information collected is of a kind that can be used to good advantage in conveying to the general public an object lesson on some well established principles in the knowledge of earthquakes. These lines have been written with that end in view.

It is now quite generally understood by men who study earthquakes, that these disturbances, whether weak or strong, are caused by a sudden slipping of one huge part

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of the earth's solid exterior on, or against, another part. The motion itself may be very small, only a fraction of an inch. Imagine a block the size of a "township" six miles square, and, say, ten miles deep, suddenly dropping down an eighth of an inch. People who have worked with large blocks of building stone or with heavy machinery will appreciate the jar which would result.

The material of which the outer known part of the earth consists is not only solid, but like other solids, it is elastic. The result is that at the place where a sudden jar occurs, down in the earth, waves will be started which will travel in all directions from the starting point. It is where these waves emerge at the earth's surface that the earthquake is felt. The place where the movement starts is called the earthquake's center, and the place above, where the wave first emerges on the earth's surface, is called the epicentre. As the waves travel outward from the centre—or from the epicentre—they decrease in intensity. The quantity of motion may remain the same, but it is distributed over larger and larger areas and through greater and greater volume and at last is too small at any particular place to be noticeable. It dies out. The earthquake waves are in this respect like the ripples produced by a stone dropped on a placid surface of water. This earthquake became insensible (to our unaided senses) at a distance of from 200 to 400 miles away from the epicentre, according to the nature of the ground through which it traveled. But the waves went on far beyond this limit, for they were recorded on seismographs in Denver, in Chicago, and in Washington. The area over which this earthquake was strong enough to be felt by man's unaided senses measured about 200,000 square miles. The great Charleston earthquake in 1886 was probably sensible over an area about ten times this size.

It is by making estimates on the relative intensity of the disturbances at the surface at as large a number of points as possible that seismologists have learned to locate the point or the region where earthquakes originate in each

case and to compare the intensity of one earthquake with that of another. In some cases it has even been possible to estimate from such data the depth to the starting point, or the earthquake centre.

While newspaper notices may not be the best data for such a study of an earthquake, they are in this case the only material at hand. Such information can be systematized, and will be found to give some light both on the relative intensity of the disturbance as a whole and on its location. Our public press employs expert newsgatherers who have training in distinguishing rumor from fact, and are as a class well informed generally.

From the information gathered it is quite evident that the greatest intensity of this earthquake was manifest in the central part of the Panhandle of Texas. The surface disturbances were evidently most pronounced in a region embracing Randall, Carson, and Roberts counties and parts of Armstrong, Gray, Roberts, and Ochiltree counties in the Texas Panhandle, and part of Beaver County in the Panhandle of Oklahoma. We may call this the epicentral area. Roughly measured, this area is about 180 miles from north-northeast to south-southwest, and 60 miles in greatest width from east to west. The approximate geographical center of this area lies some fifty miles north and east of Amarillo. The fact that this area is not a circle but rather an oval, which is more than twice as long as wide, indicates that this earthquake, as most others, was a disturbance in a fault. The location of this fault can, of course, not be accurately indicated. An approximation would be to say that it follows a line extending from Forgan in Oklahoma to Canyon in Texas. This region is covered by a considerable thickness of unconsolidated Pleistocene material. No faulting has been reported as observed in these sediments in the region, so far as the present writer is aware.

In twelve reports coming from this region the newspapers speak of the disturbance as an "earthquake," as "semi-severe," "severe," "intense," and "violent," as "shocks" or as "severe shocks," and as "jerks." Many reports speak

of it as a "tremor," "slight tremor," "distinct earth tremor," as a "rocking motion," and as "undulations of the earth." Some of these weak terms come from the same localities where much stronger descriptive terms were used by other papers, and suggest that they may have been used by editors to forestall or allay public alarm or to prevent advertising the Panhandle of Texas as an earthquake region.

The psychological effects, as we may call the reactions of the people on feeling the earthquake, clearly indicate a greater intensity in this region than outside this area. In two towns it is reported that practically all people asleep were awakened. Elsewhere it is reported that people were startled, frightened, and excited. In six places it is mentioned that people fled from houses, and in three cases we are informed that earthquake insurance was secured by some people during the same day. In several reports it is stated that the earthquake was the chief subject of conversation and inquiry among local people, not only on the day of its occurrence but in one case also on the following day. The statements were also made that a distinct shock was felt that was recognized as an earthquake by most people, and that some people could not realize what had happened but had a "curious interest" as to what had occurred.

The physical phenomena likewise reached relatively the greatest intensity in this area. Buildings swayed and houses shook and trembled in some localities. Plaster was cracked and fell from walls and roofs in a few cases. Coal was spilt through the wall of a probably dilapidated warehouse. Water was splashed from wash basins and coffee was spilt from a cup held in hand by a man at a breakfast table. Furniture was disturbed in houses, and windows and dishes rattled.

It is believed that the intensity of this earthquake in its epicentral region approached VI in the Rossi-Forell scale of intensities, as given by Dutton in his general work on earthquakes, and to the same (VI) intensity in the Mercalli scale, as given by the same author. The characterization of

intensity V in both these scales apparently falls a little below the phenomena recorded in this case. This intensity is felt generally by everyone. It causes "disturbance of furniture, beds" (Rossi-Forell). It is "felt generally indoors, but by few outside, with waking of those asleep, with alarm of some persons. There is rattling of doors, ringing of house bells, rather large oscillation of suspended objects, stopping of clocks." (Mercalli). The next greater intensity seems hardly to have been fully reached. It is characterized in the Rossi-Forell scale as the zone where there is "general awakening of those asleep, general ringing of bells, oscillations of chandeliers, stopping of clocks, visible agitation of trees and shrubs. Some startled persons leave their dwellings." The characterization of this intensity in the Mercalli scale is as follows: "Felt by everyone indoors, and by many with alarm and flight into the open air. Fall of objects in houses, fall of plaster, with some slight cracks in badly built houses." It appears that this intensity was reached at a few points in epicentral area, but it does not appear to have been generally reached there. The greatest intensity appears to be reported from Amarillo, Canyon, Claude, Miami, Pampa, Clarendon, Panhandle, and White Deer. These localities lie in a belt running from southwest to northeast, their geographical center being not far from midway between Groom and Panhandle City. The point is also near the center of the southern and widest part of our epicentral area, as already defined. It probably lies as near to the true epicentre as it is possible to fix this point from the data collected.

Going beyond the epicentral area the earthquake waves gave evidence of an appreciable decline in their force. All around it there is a zone, or a ring, from thirty to eighty miles in width, where the recorded phenomena quite clearly correspond to the intensities assigned to number IV in the scales mentioned. This territory, or zone, comprises the towns of Higgins, Mobeetie, Wheeler, McLean, Shamrock, Wellington, Memphis, Childress, Kirkland, Floydada, Lockney, Plainview, Tulia, Farwell, Hereford, Vega, Channing,

Dalhart, Hansford and Texhoma, all in Texas; Guymon, Shattuck, and Sayre in Oklahoma; Texico and Clovis in New Mexico, and apparently Liberal in Kansas.

The reports from this zone come nearer to using the proper designations for the disturbance than the reports coming from the epicentral tracts, possibly for the reason that the earthquake in this zone gave less alarm and there was hence less occasion for "editing" what was given out as news. Briefly: the disturbance was called by its right name, an earthquake shock, in twelve reports. It was called an earth tremor or an earthquake tremor in nine reports. Other terms used were shock (6 reports), tremor (6), slight and light tremor (2), vibration (1), trembling (1), shake (1).

The reports from six places in this zone state that the earthquake was felt by many people. In seven reports it is stated that many, or a smaller number of people, were awakened by it. Six other reports stated merely that the earthquake was felt or was noted. At Childress it was reported that "hundreds were awakened by an unusual trembling of the beds." It is reported from other places that there was alarm and excitement (2), that parents wired an absent son about the earthquake (1), that some people referred the disturbances to heavy trains moving (1), that the earthquake "caused much comment" (2), and that people in one city fled from the second and third stories of buildings. The passage of a gentle earthquake wave merely rocks buildings, and it is a well known fact that such rocking swings the upper stories more than the lower in the high buildings, and hence is more alarming there. The physical disturbances in this zone are also evidently less intense than they were in the epicentral region. Although the area of this zone is fully three times the size of the epicentral area only four reports mention fractured plaster or walls. Buildings are reported to have shaken or trembled (7), furniture was disturbed (14) and dishes and windows rattled or were shaken (19).

If we follow the earthquake waves from about fifty to two hundred miles still farther out from the epicentral region, we find that they have weakened still more. Their intensity here corresponds more nearly to number III in the scales already mentioned. The reporters here speak in most cases of tremors (32), of shocks (17), of earthquake or quake (7), of tremor (1), vibrations (1), tremble (1), agitation of the earth's surface (1), and movement (1). Thirty reports mention the disturbance merely as having been felt. Fright, caution, and excitement are mentioned, each only once. Alarm is reported in one instance as having been experienced in the upper stories of one building. One person or a few persons in each locality are mentioned as having been awakened. The earthquake was not generally recognized as such, and two reports specially refer to the fact that its real nature was understood by people who had felt earthquakes in California. The intensity does not seem to have been quite uniform. Five reports mention that houses were shaken or swayed. A cement porch was believed to have been cracked in Kansas, a clock was stopped in Tucumcari, New Mexico, and a chimney fell in Wichita Falls, Texas. Most of the physical results reported in this zone are the shaking of beds and other furniture (17), and the shaking or rattling of dishes, windows, and doors (15).

The zone of the intensity III merged into the zone of intensity II, beyond which the disturbance became insensible to direct observation. This zone of intensity II had a width of about a hundred miles, so far as it can be defined. From this area less than a dozen reports appeared in the newspapers. But these clearly indicate the decreasing force of the waves as they reached a distance of from 160 to 320 miles away from the epicenter. The reporters refer to the disturbance here as "indistinct shocks" and "earth tremors," as earth tremors of "low intensity," and of "very low intensity," as "distinct tremors" in one case, and as a "rumble." Seven reports merely state that the earthquake was felt. In Wichita, Kansas, we are told that the newspapers knew nothing about it until they began receiving

calls from the residents in the outlying districts. The most distant points at which the waves were sensible lay north-east from the epicentral area. This was at Kansas City and at Leavenworth. These places are about 500 miles distant from where this earthquake started. A door ajar creaked back and forth and some beds shook in Kansas City, where several persons are reported to have felt the tremors. The reports mention that among these were a few "veterans" who had experienced earthquakes in other parts of the world. Beds were also rattled in Leavenworth. At Blackwell in Oklahoma, and in Dodge City in Kansas reports state that only a few persons felt tremors.

It is not intended to follow these earthquake waves beyond the limits where they ceased to be felt, or otherwise to be directly perceptible. Nevertheless, it is interesting to recall that this earthquake was recorded on several seismographs. A news item stated that Father W. A. Forestall, seismologist at St. Regis College in Denver, reported that his instruments registered a severe earth shock at 6:20 A.M. July 30, and he gave the location as about 300 miles south from Denver. Professor C. J. Posey, observer in charge of a seismograph at Lawrence, Kansas, was reported as stating that the center of disturbance was more west than south from that place. Dr. F. A. Tondorf, seismologist at the Georgetown University in Washington, also noted this earthquake record, and his off-hand estimate gave the center of the disturbance as about 1,700 miles distant from Washington. The distance was a little less than this, about 1,450 miles, but all three of these instrumental observations gave notably correct information. They illustrate the perfection of seismographic records and the skill attained in the interpretation of such records.

From Hobart in Oklahoma and from Childress, Panhandle City, and Post in Texas, reports were made of a tremor which was felt some three hours earlier than the main disturbance after 6 o'clock A.M. At Post this earlier jar is reported to have been even stronger than the later one. These observations seem to be corroborated by the seismo-

graphic record made at the University of Chicago by the United States Weather Bureau. It showed a sharp movement at 1:58 A.M. and the earthquake ended three hours later. It is evident that the widest disturbance occurred about 6:15 in the morning. The earlier movement may have been quite local and may have been the trigger snap which served to set off the main disturbance.

The *Amarillo Daily News* for July 31, 1925, published many notes on this earthquake. Among these are two items referring to two earlier disturbances experienced in the region, one of which occurred in 1907, the other in 1917. The item on the earlier earthquake states that "Mrs. C. R. Warren, 1101 Lincoln Street, declared a tremor hit Amarillo about 6 o'clock one Saturday afternoon in April, 1907, breaking a window in her home. People living along Madison Street said it shook their dishes." An item in the same issue, dated at Panhandle City, states that "an earthquake shock was felt throughout the Panhandle on March 24, 1917, similar to today's quake. . . . The shock at that time was felt about 1:30 o'clock in the afternoon. Cement on walls on many buildings was cracked and the school building was severely shaken; however, it suffered no damage. The children became excited and the school was dismissed at once. People who were riding in cars at that time declared they could hardly remain in their seats due to the intensity of the shock." The *Herald* for July 31, 1925, published in Panhandle City, also mentions this earthquake. It says "the quake recalls a similar shakeup that was distinctly felt in the Panhandle and through the northern portion of Carson County and southern portion of Hutchinson County at 1:30 o'clock P.M. on the 24th day of March, 1917. At that time particles of the ceiling plaster of the Panhandle Bank building were shaken loose and fell to the floor."

These two earlier earthquakes apparently were not as severe as the one that occurred in 1925, but the fact that they were felt so near the epicentral area of the latter confirms the supposition that a fault exists in the solid under-

lying rocks in this territory, and that this fault is still active. Attention might be called to the circumstance that the two intervals between these three earthquakes were respectively ten and eight years. While disturbances of this kind cannot be predicted, it seems reasonable to suppose that future events are apt to be as in the past, and that hence serious or destructive earthquakes are unlikely to occur, but that we should not be surprised if "tremors" should occur once in a decade on these plains of the Southwest.

LOCAL DATA COLLECTED

The following list contains all the data collected, bearing on this study of the Texas Panhandle earthquake of July 30, 1925. It will be seen that with few exceptions these data consist of clippings from newspapers in the area where the earthquake was felt. The data are arranged by States, and under each State by cities, alphabetically.

The data are published in order that they may be available for comparison to future students of earthquake phenomena in this part of our continent. They do not, of course, represent the best data that could have been secured if time could have been taken to visit all the points where the earthquake was felt and to take notes while the disturbance was yet fresh in the minds of the observers. Such a study was out of the question in this case. It is a satisfaction to note the plain and matter-of-fact statements coming from the journalistic profession on a natural phenomenon of such an unusual occurrence in this part of the world. The data give no indication of any desire on part of the reporters to exaggerate, nor generally to minimize, the local effects of the earthquake.

To reduce the bulk of this material it has been found convenient in some cases to eliminate sentences or whole paragraphs lacking any bearing on the nature of the earthquake. Where this has been done the elisions are for the most part indicated. In a few cases statements have been abbreviated to the essential parts, care being taken to preserve the exact sense of the original statement. In by far the most cases the original phrasing of the items remain.

Most of the newspaper clippings were furnished by the Clipping Bureau of the Department of Publicity of the University of Texas. All of these gave the name, date, and location of the paper quoted. But there were also received clippings from various other sources, and with regard to these the record of the sources is not as full as would have been desirable. A few of these serve to complete the

whole and to fill in gaps, so to speak, and since they have all the appearance of being authentic, have also been used. Most of the newspapers quoted were issued on July 30, 1925, or on the next following date of issue of the local papers.

Colorado

Melrose Messenger, New Mexico.—The quake was felt as far north as La Junta, Colorado.

Denver

Leader, Orange, Texas.—Father W. A. Forestall, a seismologist at St. Regis College, reported that his instruments registered a severe earthquake shock at 6:12 this morning. The location was about 300 miles southwest of here.

District of Columbia

Georgetown

Times, Wichita Falls.—Sharp earthquake shocks were registered on the Georgetown University seismograph today, beginning at 7:15 A.M., eastern standard time, and lasting until about 8 o'clock. The maximum disturbance was at 7:20 A.M. The center of the disturbance was placed by Director Tondorf as about 1,700 miles from Washington.

Illinois

Chicago

Argus, Rock Island, Illinois.—A rather severe earthquake of an indicated distance of 1,840 miles in a southerly direction from Chicago, was recorded at 1:54 A.M. on the U. S. Weather Bureau seismograph at the University of Chicago today. The record showed a sharp movement at 1:58 A.M., four minutes after the first tremor. The quake ended at 4 A.M.

Kansas

Ashland

Clipper, Ashland, Kansas.—What was evidently a light series of earthquakes was felt in Ashland at 6:20 this morning. A number of people were awakened from their sleep by the quakes. Others who were at the breakfast table felt the quakes and heard the rumble. At one breakfast table a well-filled coffee cup spilled over into the saucer. . . . The quakes lasted only a few seconds.

Dodge City

Communication from I. C. Ross, editor of the *Southwest News*, Dodge City, Kansas.—Quake was not felt here generally, although a few were found who reported feeling the rumble very slightly.

Lawrence

Herald, Greenville, Texas.—The seismograph at the University of Kansas recorded tremors at 6:09 A.M.

Daily Courier, Winfield, Kansas.—The seismograph at the University of Kansas recorded earthquake tremors of low intensity this morning, beginning at 6:20 o'clock and lasting three minutes and ten seconds. Professor C. J. Posey, the observer, said the intensity was greatest in an east-west direction and estimated that the center of disturbance was more south of here.

Press, Texarkana, Texas.—The seismograph of the University of Kansas recorded east-west tremors of low intensity at 6:09 A.M.

Leavenworth

Banner, Greenville, Texas.—Leavenworth experienced two distinct tremors, about fifteen minutes apart.

Daily Courier, Winfield, Kansas.—Leavenworth felt two shocks between 5 and 6:15 (A.M.). The first shock at 6 o'clock was very indistinct. At 6:15 the second shock occurred, but was not intense enough to shake pictures from the walls. Mrs. —, who recently returned from California, declared the second shock had the effect of rattling the bed in her room.

Liberal

Star, Kansas City, Missouri.—At Liberal it was said the bells on several locomotives in the Rock Island's yards were rung by the tremor.

Light, San Antonio, Texas.—A slight earth tremor occurred at Liberal, Kansas, at 6:15 this morning. The tremor lasted about three minutes and was sufficiently strong to rattle windows and dishes and move heavy furniture slightly.

Medicine Lodge

News, Amarillo, Texas.—Medicine Lodge . . . felt slight vibrations . . .

Light, San Antonio, Texas.—An earth tremor of very low intensity was felt at Medicine Lodge about 6:15 A.M. today.

Tribune, Galveston, Texas.—An earth tremor of very low intensity was felt at Medicine Lodge at about 6:15 A.M. today.

Wichita

Daily Courier, Winfield, Kansas.—An earth tremor of very low intensity was felt in Wichita about 6:15 A.M. today. The local newspapers knew nothing of it until they began receiving calls from residents in the outlying districts.

Times, Tyler, Texas.—Wichita (Kansas) and Ashland (Kansas) were also shaken.

Winfield

Daily Courier, Winfield, Kansas.—Several Winfield people report feeling the earth tremble. Mrs. Eugene Gentry, of East Tenth, felt three distinct shocks about 6:15 A.M. while still in bed. A. U. Burdette also reports feeling the shock yesterday morning. . . . West of the city at the L. M. Wortman country home the cement porch is today showing effects of the quake. A crack said to be half-inch across may be seen across the porch. The Wortman family also report feeling the quake, and the dishes rattled about that time and windows shook.

Missouri

Kansas City

Times, Kansas City, Missouri.—Several persons . . . felt earth tremors early yesterday morning. Mrs. Inez Bowles said: "The tremor . . . was of about the same duration and nearly as severe as the one we felt in Los Angeles. My door was ajar and it creaked back and forth on its hinges." Mr. F. Cremer declared the tremor shook the beds in his house.

Press, Houston, Texas.—Several "veterans" of recent California earthquakes report that they felt yesterday's Southwest tremor here (in Kansas City).

Oklahoma

Beaver

Herald-Democrat, Beaver, Oklahoma.—Houses were shaken, rattling stoves, dishes and the like, by a genuine earthquake all over this part of the country at 6:19 Thursday morning. From nearly every home comes reports that the shock, jar, or tremor was felt distinctly, and many of the late sleepers admit they were awakened by what seemed to be someone shaking their bed. There were two distinct shocks felt here, lasting perhaps a full minute from the beginning of the first tremor to the end of the second one. Although it shook buildings . . . there were many who were out of doors at the time who felt no sensation whatever.

Forgan

Eagle, Forgan, Oklahoma.—Two distinct shocks, which rattled windows, stoves, and dishes, was noticed in most homes just after 6 o'clock A.M. (July 30).

Guymon

News, Dallas.—Plaster was shaken from ceilings and dishes rattled by an earth tremor at Guymon early Thursday. No material damage was reported.

Hobart

News, Dallas, Texas.—Two distinct earthquake shocks were felt at Hobart early Thursday. The first occurred at 4 o'clock and was very light, but the second, at 6:15, rattled dishes and displaced furniture in a number of homes, causing persons sleeping in second and third-story rooms to flee from the buildings. The tremors were of short duration.

Lawton

News, Dallas, Texas.—Lawton experienced earthquake tremors Thursday, according to a report of a number of citizens. The first and only tremor here occurred at 6:15 o'clock Thursday morning and lasted but one minute. At the W. A. Robertson home it shook the beds and rattled the doors. . . . Miss Pansy Robertson, who a number of years ago was in California during shocks there, says that the tremor here Thursday was identical to those she experienced in California. Mrs. Carnay was awakened by the shaking of her bed and squeaking of hinges on doors. Mr. Connor, who has gone through California earthquakes, said the sensation here Thursday was very similar to those felt on the West coast. . . .

Oklahoma City

Herald, El Paso, Texas.—Scores of persons here declared they had felt a slight earth tremor early today. They said the quake seemed to last thirty seconds.

Press, Texarkana, Texas.—Several persons in widely separated sections of Oklahoma City telephoned the United States weather office that they had felt the shock. It was very light, and they said they hesitated to report it until their experience was confirmed from other cities in the State.

Sayre

News, Amarillo, Texas.—The earthquake was felt . . . as far west as Sayre, Oklahoma.

Shattuck

News, McLean, Texas.—The Santa Fe Railroad reports shock felt east (as far as) to Shattuck, Oklahoma.

Texhoma

Times, Cleburne, Texas.—R. L. Odom, advertising manager of *The Times*, received a telegram from his parents at Texhoma, Oklahoma, that the window glass and dishes in their home were shaken by earthquake tremors at an early hour this morning.

Vici

Express, San Antonio, Texas.—Quakes were reported from Vici, Altus, Woodward, and Belva, Oklahoma. Clovis, New Mexico, also reported a shock. Along the Fort Worth & Denver Railroad the tremors extended to Dalhart. Along the Rock Island Railroad the shock extended from Tucumcari, New Mexico, to McLean, Texas.

Woodward

News, Belleview, Texas.—Among the points reporting tremors were . . . Woodward, Oklahoma.

New Mexico

Clovis

Daily Record, Roswell, New Mexico.—The earthquake was felt at Clovis. Mrs. W. L. Reese was awakened this morning at her home in Morningside at 5:25 o'clock by a distinct tremor, which was followed a few seconds later by another tremor. . . . Cleve Hallenbeck, official in charge of the local weather bureau office, reported today that he clearly felt the quake this morning while in his office at the Federal building taking observations. Mr. Hallenbeck says he felt the earth tremor at exactly 5:16 o'clock.

Daily News, Amarillo.—Sharp earth tremors were felt here at 5:17 (A.M.), buildings were badly shaken, dishes jarred from their shelves. No property damage has been reported. The tremors lasted about thirty seconds, two distinct shocks being felt.

News, Dallas, Texas.—Tremors severe enough to rattle dishes and shake windows were felt at Clovis, Tucumcari, and Roswell.

Dillon

Press, Texarkana, Texas.—A large cistern under construction by the Santa Fe Railroad was badly damaged (by the earthquake).

Melrose

Messenger, Melrose, New Mexico.—H. W. Austin, who ranches some fourteen miles northwest of the city, says that his adobe house was shaken by the tremor, we are informed.

Mosquero

Hardin County Developer, Mosquero, New Mexico.—Some of our townspeople were awakened Thursday morning, July 30, about 5 o'clock by a slight earthquake shock.

Mountainair

Journal, Clovis, New Mexico.—Fissures in the earth's surface, two feet wide, the bottom of some of which cannot be seen, were found fifteen miles southeast of Mountainair, Sunday, three days after the earthquake which was felt throughout this entire region last Thursday morning. . . . The cracks in the ground were reported in Mountainair, and exploring parties immediately went to the scene, which is located in a shallow draw. The fissures, according to the story told to J. T. Miller, Santa Fe claim agent, by members of the exploring party at Mountainair, are arranged in zigzag formation, like a chain of lightning, and run in an east-west direction. The openings start with a crack of only a few inches, and in a distance of fifty feet widen out to between two and three feet. Each fissure branches off from another, but at an angle. Some of the openings were so deep that the bottom could not be seen. Members of the exploring party dropped lighted matches in them, but after falling a short distance the matches disappeared on one side or the other of the main fissure, etc. . . . The fissures traverse a distance of more than a half mile.

Raton

Press, Texarkana, Texas.—Two earthquakes were felt at Raton, New Mexico, at 4:30 o'clock this morning, reports received here late today stated. Both tremors were slight.

Roswell

Herald, El Paso, Texas.—Earth shocks were felt here (at Roswell) at 5:25 this morning. Several people were awakened by tremors shaking beds. . . .

Daily Record, Roswell, New Mexico.—"Earth Tremors Are Felt in Roswell," etc. (Part of headlines.)

News, Paris, Texas.—Tremors were felt at Roswell, New Mexico.

News, Dallas, Texas.—Rattled dishes and shook windows. See Clovis, New Mexico.

Texico

News, McLean, Texas.—The Santa Fe Railroad reports shocks felt west to Texico, New Mexico, and east to Shattuck, Oklahoma.

Tucumcari

Letter from H. O. Norris, editor *Review*, Fort Sumner, New Mexico.—The tremor is also said to have stopped the clock in the Rock Island offices at Tucumcari, but was not felt by but a few in that city, it is reported.

News, Dallas, Texas.—Rattled dishes and shook windows. See Clovis.

Texas

Amarillo

Amarillo Post, Amarillo, Texas.—Mr. and Mrs. G. W. Scott, 707 Harrison Street, who have just recently moved here from California, were quick to recognize the tremors this morning. They hurriedly dressed and fled from the house, telling other occupants they were from California and knew an earthquake when one hit.

Speaker of the House Lee Satterwhite was standing on his sleeping porch. He first thought a heavy wind had struck the house, but was quick to realize what had happened, shouting to Mrs. Satterwhite that an earthquake was in progress.

Mrs. Timmons, 705 Harrison Street, says she was startled from her slumbers by a sharp jerk. "At first I thought it was someone jumping up and down on the porch," she said.

The paper contains a paragraph mentioning four insurance companies which reported doing brisk business selling earthquake insurance after the disturbance.

It (the earthquake) was the chief subject of conversation yesterday, and it remains almost so today (July 31).

Dishes fell from their places in San Jacinto Heights. . . .

Daily News, Amarillo, Texas.—When Mr. ———, living on Tyler Street, heard the tremors, he grabbed his son and started to run out of the house. Reaching the door, he decided the tremor wasn't so serious after all.

Immediately after the shocks people jumped from their beds and began calling to neighbors, inquiring if they had felt the earthquake. . . . Houses shook and windows rattled much as they do in a violent windstorm. No walls were cracked so far as is known.

Drugstore "cowboys" and all persons were talking about the tremors. Wherever you found people talking yesterday, they were discussing the earthquake (July 31).

Globe, Amarillo, Texas.—Numbers of houses in Amarillo were emptied of residents in a very few moments in fear of their collapse. In higher buildings the swaying was much more pronounced, persons in the Amarillo and Palo Duro hotels reporting that the swaying was of such degree as to splash water out of the washbowls . . .

One member of the *Globe* staff waked early this morning to feel the bed shaking under him and hear the windows rattling.

Earthquake insurance stock has taken a rise in Amarillo. At 7:20 o'clock this morning, O—— and S—— wrote a policy, and in two hours following they wrote seven earthquake policies. Other insurance firms also are getting busy on quake insurance.

Record, Amarillo, Texas.—There is considerable excitement here following the earth's tremors.

Herald, Denison, Texas.—Buildings here (Amarillo) swayed noticeably for a few seconds, causing considerable excitement. Newspaper offices and the local weather bureau received many telephone calls from frightened residents.

Examiner, Navasota, Texas.—The tremor caused people in Amarillo to flee from their houses. . . . Residents who had experienced earthquakes formerly, declared the shocks were violent.

The W. County, Shamrock, Texas.—The shaking up seems to have been worse in Amarillo than here, according to report, having been sufficiently violent to crack the plaster in some few homes in that city.

Post, El Paso, Texas.—The tremors in Amarillo caused people to flee from their homes, due to the novelty, etc. . . . Residents here who have felt shocks before, however, declared the tremblors were violent, although no great damage was done.

Review, Wheeler, Texas.— . . . "some plaster being cracked from walls in Amarillo."

News, Dallas, Texas.— . . . The tremblor has caused more comment and interest in Amarillo than anything that has happened here in months.

News, San Antonio, Texas.—The undulations of the earth caused many persons to flee from their homes, due to the novelty of the situation rather than fear.

Oil Belt News, Eastland, Texas.—Semi-severe earthquake shocks were felt here (Amarillo) at 6:15 o'clock. . . . Some say that the disturbances lasted fifteen seconds and others that they continued a full minute. . . . The damage was very slight.

Register, Gainesville, Texas.—At least one person took the earthquake seriously here (at Amarillo) and took steps to protect his property. A local insurance agency issued a policy at 7:20 o'clock, less than an hour after the quake awakened the city.

Record, Fort Worth.—The entire Panhandle was rocked by an earthquake at 6:15 o'clock this morning. No damage was done, but widespread excitement was created, many people running into the streets for fear their houses would collapse.

News, Bonham, Texas.—The tremors (at Amarillo) caused people

to flee from their homes, due to the novelty of the situation rather than from fear. Residents here (at Amarillo) who experienced earthquakes at other places, declared the shocks were violent.

Enterprise, Olney, Texas.—The shocks there (at Amarillo) were registered at 6:12 A.M. . . .

Banner, Greenville, Texas.—Earth tremors of nearly fifteen minutes duration registered here (at Amarillo) at 6 A.M. Buildings swayed noticeably, but no damage. Local weather and newspaper offices were flooded with inquiries about the shock.

Canyon

Record, Fort Worth.—At 6:20 o'clock this morning citizens of Canyon who already were up were startled, and those sleeping were shocked wide awake by an earthquake which lasted between fifteen and twenty seconds. Many who felt the shock declared that there was a distinct east and west rocking motion, while others said the movement was a series of jerks seemingly without direction. The shock was sufficient to rattle dishes and household furniture, but so far as has been determined there was no damage done anywhere in this section of the country. There has been no fear created by the disturbance. . . . People are viewing the phenomena with curious interest. . . . The quake was preceded and followed by rain.

News, Dallas, Texas.—Those still asleep were awakened and those awake were awed or excited by the shock which lasted from fifteen to twenty seconds, shaking dishes and disturbing furniture, but doing no damage. . . .

Times, Ranger, Texas.—Thursday morning while eating breakfast (at Canyon), prior to leaving for Ranger, Mr. J. M. White said the coffee near his plate apparently jumped from the cup to meet him. The entire table shook and plates and cups got mixed. The shock lasted only for a second and resembled somewhat the disturbance when someone kicks the table legs . . . but all denied it. Then one of the larger boys came running downstairs and said that his bed was running away from him. The entire shock lasted only a few seconds and then it was all over. We thought no more about it . . . until arriving in Canyon on the way to the train we found everyone telling about the shocks. . . . The citizens were in a fever of excitement."

Times, Tyler, Texas.—Distinct earth tremors were felt (in Canyon) at 6:20 A.M. today. No damage was done.

Channing

News, Channing, Texas.—A distinct earthquake shock was felt here this morning at 6:18 o'clock. Windows shook and plate glass in business houses rattled, but it was not sufficiently severe to cause damage. . . .

Post, Childress, Texas.—Local telegraph and telephone advices indicate that tremors were felt at . . . Channing, Texas.

Childress

Banner, Greenville, Texas.—Two earthquakes were felt at Childress. . . . The first was felt about 2 A.M. and the second a little after 6 A.M., the quakes lasting about half a second in each instance.

Daily News, Amarillo, Texas.—The Panhandle's earthquake shook buildings rather sharply here. No damage is reported, but in some instances it was reported sleepers were tumbled from their beds.

Express, San Antonio.—Two earthshocks were felt at Childress. . . . The first was felt at about 2 A.M. and the second a few minutes after 6 A.M. The tremors lasted about a half second in each instance. No damage reported.

Post, Childress, Texas.—Hundreds of residents of Childress were startled this morning by distinct earthquake shocks, felt here at about 6:17 A.M. Many were asleep and did not awake, while hundreds were awakened by the unusual trembling of their beds. The shock, or shocks, seemed to be most apparent in the two and three-story brick business houses and hotels. Occupants of these were variously affected by the tremors, in some instances their violence being cause of momentary alarm. Extraordinary rattling of windows, beds shaken as though by a rough hand, rattling of dishes on shelves, doors and wardrobes . . . swinging to and fro . . . were described by citizens.

Index, Childress, Texas.—An earthquake was felt at Childress Thursday morning at 6:10 o'clock. The tremor was very slight, but was noticed by a large number of people of the city. The agreement is the quake was of about three seconds duration, but the direction could hardly be told. Miss Cora Austin, night operator in the local telephone exchange, noticed the tremor and looked at the time. No damage . . . was done, and many people did not notice the tremor, . . . while others gave but little attention to it, thinking there was some local disturbance or a heavy train leaving the yards.

Clarendon

Daily News, Amarillo, Texas.—A distinct earthquake shock was felt here at 6:15 o'clock this morning. . . . No damage was done by the quake. However, it caused much excitement and brought some people from their homes. It was just strong enough for people to recognize it. Dishes were rattled, windows shook, and furniture quivered during the tremor, which continued less than a minute.

News, Dallas, Texas.—Clarendon experienced an earthquake at 6:15 Thursday morning, the tremors lasting only a few seconds. . . .

The only sensation reported by those who noticed the presence of the phenomenon being due to a trembling of the earth and slight shaking of buildings. . . . Every person who was up at the time felt the buildings (tremble) and heard the windows rattle.

Globe, Amarillo, Texas.—Clarendon citizens rushed from their houses this morning into drenching rain as a result of two sharp earthquake shocks felt at 6:05 and 6:10 A.M. The shocks were intense enough to rock buildings, but only of short duration. . . . Windows and dishes in homes were rattled and considerable excitement prevails . . . this morning.

Messenger, Marshall, Texas.—Two shocks were felt in Clarendon at 6:10 o'clock this morning.

Claude

Globe, Amarillo, Texas.—Claude is humming with excited talk of the first earthquake in the history of this city, which occurred early this morning. The shock rattled windows in houses here and caused many people to rush out into the open.

Daily News, Amarillo, Texas.—Much excitement prevailed in Claude this morning when houses were shaken and business buildings swayed in the earthquake that lasted thirty seconds. . . .

Avalanche, Lubbock, Texas.—An earthquake shock was felt in Claude this morning at 6:30. . . . Furniture shook and dishes rattled, creating quite an excitement.

Floydada

Daily News, Amarillo, Texas.—Floydada reported the vibrations caused furniture to move about the floors.

Daily News, Amarillo, Texas.—Floydada buildings vibrated keenly in the shock that was felt over this section shortly after 6 o'clock this morning. . . . The shock was hard enough to move furniture about in rooms, and sleepers were aroused with a start. It lasted about half a minute.

Hesperian, Floydada, Texas.—Three distinct earthquake tremors were felt in Floydada this morning at 6:15 by scores of residents, who said that the shocks followed each other in quick succession and all occurred within a period of a half minute. Some of the persons who felt the shock were awakened from their sleep by the rocking motion, while early risers felt the shocks while at their work. . . . At Floydada the tremor amounted to a rattling of windows and doors. . . . One resident who has experienced several tremors on the Pacific coast, said the wave was apparently from north to south.

Groom

Post, Amarillo, Texas.—A telephone report from Groom said groceries in a store there were jarred from their shelves.

News, Dallas, Texas.—Earth tremors were felt at Groom on Thursday morning at 6:15 o'clock, lasting about two seconds. It resembled jarring of the ground by heavy truck or train.

Hereford

Record, Fort Worth.—The . . . earthquake . . . occurred here (Hereford) at 6:15 o'clock, which caused a number of residence and business buildings to quiver and disturbed a number of citizens from their slumbers, but did no damage otherwise. The tremors lasted for more than a second. The unusual occurrence is causing a great deal of comment on the streets of Hereford.

Review, Cleburne, Texas.—Substantial buildings in Hereford trembled and a number of citizens were disturbed from their slumbers at 6:15 A.M. Thursday by the first earthquake ever felt in this section.

Panhandle, Lubbock, Texas.—Light tremors that shook the windows in several of the business and residential buildings and lasting for more than a second, occurred in Hereford about 6:15 o'clock this morning. . . . This . . . caused a great deal of comment among local people.

Lubbock

Avalanche, Lubbock, Texas.—Very perceptible tremors were felt in Lubbock at about 6:15 o'clock Thursday morning.

Press, Texarkana, Texas.—Perceptible earth tremors were felt in Lubbock about 6:15 A.M. today. Persons in upper stories of buildings said the disturbances were great enough to alarm. No damage was done and little excitement was evident after the tremors subsided. . . . Dr. Paul W. Horne, President of the Texas Technological College here, said he noticed the slight shock, declaring it lasted for fifteen to twenty seconds.

McLean

News, McLean, Texas.—A new experience for our people was had when an earthquake tremor was felt here at a few minutes after 6 o'clock this morning. The trembling lasted for about forty-five seconds, with the hardest part of the shock only about ten seconds. The shock was strong enough to rattle windows and dishes. . . .

Memphis

Daily News, Amarillo, Texas.—A distinct earth shock was felt at Memphis at 6:15 this morning. No damage was done. The shock lasted for thirty seconds.

News, Dallas, Texas.—An earthquake was felt at Memphis at 6:20 A.M. Scores of people felt it. Houses rocked slightly. Beds were shaken and dishes rattled. It was the sole topic of conversation on the streets early Thursday, as people told of their experiences.

Miami

Messenger, Marshall, Texas.—Miami felt the shock, also. There it caused the people to run from their houses. This, however, was because of the novelty of the occasion rather than its severity. Residents there who have experienced other shocks declared the shock violent.

Chief, Miami, Texas.—This morning a slight earth tremor was felt in Miami. . . . There are many stories being circulated as to how the dishes rattled on the table, the beds shook, the windows rattled and the windmills swayed. . . . There was not even the slightest breeze astir at the time of the tremor.

Mobeetie

Star-Telegram, Fort Worth, Texas.—Mobeetie . . . felt the tremors.

Pampa

Daily News, Amarillo, Texas.—The earthquake was very severe in both Gray and Wheeler counties. People awakening could hardly realize what had happened. Pampa people ran from their houses and excitement was widespread. The shock lasted about thirty seconds.

Post, Amarillo, Texas.—Farm hands at I. D. Hughey's place near Pampa saw a granary swaying back and forth and thought it was caused by a horse rubbing against the wall. They soon learned their mistake and fled to the house, greatly excited.

Globe, Amarillo, Texas.—An earthquake lasting about four seconds was very distinctly felt (at Pampa) this morning at 6:17 o'clock. People could hardly realize what had happened. . . . Pampa people ran from their houses into the street. There was no damage . . . but considerable excitement is prevailing throughout the town.

News, Dallas, Texas.—Pampa was rocked by earthquake at 6:17 A.M. Thursday. There were three distinct shocks, lasting some twenty seconds.

News, Dallas, Texas.—The quake appeared to be more intense at Amarillo, Pampa and Panhandle, than at other points. . . .

Daily News, Amarillo, Texas.—Pampa reported two shocks. Buildings were seen to sway.

Panhandle (City)

Post, Amarillo, Texas.—The tremors this morning (July 30), lasted only a few seconds. The shock was distinct enough to cause houses to tremble and dishes to rattle. The walls of an elevator warehouse of the U. S. Strader Company were shaken down and the coal in it was scattered over the railroad tracks.

Herald, Panhandle, Texas.—An earthquake shock of from ten to twenty seconds duration (occurred) at 6:17 A.M. No damage resulted from the shakeup except (that) the walls of one of the coal bins at the Strader grain elevator was jarred loose, spilling a lot of coal resting against the wall. People who were up at that hour felt the shock distinctly, and in many homes there was considerable excitement for the moment, most people realizing at once what the trouble was. The *Herald* editor felt the shock distinctly . . . and realized that it was an earth tremor. Probably the only earthquake insurance policy ever issued in Panhandle or the Panhandle section of Texas was issued Thursday by the L. E. Brain insurance agency.

Times, Cleburne, Texas.—Panhandle, Texas, had a thirty-second shock. One came at 2 o'clock and one about 6 A.M.

Perryton

Herald, Perryton, Texas.—Many people residing in and near Perryton report the feeling of earth tremors, resembling earthquake shocks, on Thursday morning about 6:15. . . .

Plainview

Herald, Plainview, Texas.—The tremblor was very slight at Plainview. Only a very few people felt the shock at all.

Daily News, Amarillo, Texas.—The Panhandle's earthquake . . . (was) felt here (at Plainview). Practically everyone out of bed felt the shock, and within a few minutes there was much excitement.

News, Dallas, Texas.—Two distinct earthquake tremors were recorded at Plainview Thursday morning at 6:15 o'clock. Several residents of Plainview reported feeling a very perceptible tremble. Mrs. Jewell R. Smith, of Plainview, who for a number of years was a resident of California and who experienced twelve different earthquakes, said that she and her mother, Mrs. D. Gray Dean, of Henderson, who is visiting here, noticed the tremors and knew at once they were earthquake disturbances.

Post

Letter from V. A. Robinson, City Engineer, Post, Texas: Comparing notes the following morning with associates here, I found several that experienced the early morning shocks (about 2 A.M.), the most severe of the two, and quite a number the other (about 6:00 A.M.), this latter being hardly more than a mere tremor. Those of us who experienced the first, agree that there were a series of five to seven tremors in quick succession covering a period of perhaps a second of time and perceptibly shaking the houses as severely as does some of the high winds we have in this section. One man occupying a stone house felt it just as perceptibly as others of us occupying frame houses.

Seymour

Banner, Seymour, Texas.—A few people in this vicinity are reported to have felt the agitation of the earth's surface. A member of the city council reports to have heard the dishes rattle in his home. . . .

Shamrock

The W. County, Shamrock, Texas.—Local people who were up at the time, report the shock as being slight but quite distinct, and many who were asleep were awakened by the rattling of windows.

News, Dallas.—Distinct shaking of the earth continuing for about thirty-five seconds was felt here between 6:15 and 6:20 A.M. Thursday. Windows were shaken audibly.

Spearman (earlier name Hansford)

Star-Telegram, Fort Worth.—Two distinct earthquake shocks, one minute apart, were felt here (at Spearman) at 6:30 A.M. Thursday.

Spur

The Spur, Spur, Texas.—Earthquake tremors lasting over half a minute were felt by a number of people at 6 o'clock Thursday morning.

Letter from (Miss) J. M. Hickman, bookkeeper, Spur Farm Lands, Spur, Texas: Three or four guests at the Spur Inn reported being awakened by the shaking of their beds. Something awakened me (at the Inn), and the footboards of my bed seemed to be shaking. At the time I decided that I had been dreaming, but after reading the accounts of the quake, I decided that I, too, had felt it.

Tulia

Letter from Mr. Dennis Zimmerman, Tulia, Texas: I did not feel the supposed quake here, but have talked to several who felt it. The shake resembled the rattle sometimes accompanying extra heavy thunder. . . . Some state that the beds were rocked. One man here . . . claims that the wallpaper in his house in one room was cracked. . . .

Vega

Post, Amarillo, Texas.—Dr. O. H. Loyd, of Vega, drove over to Amarillo this morning. He said that the earthquake shocks were felt in that section.

Wellington

Leader, Wellington, Texas.—The earthquake that occurred at about 6:15 Thursday morning did no serious damage to property in Well-

ington, but some damage has been attributed to the tremors. A long break, extending almost the length of the west side of the addition to the Methodist Church, was discovered Thursday morning by workmen, some of whom gave as explanation the tremors that had occurred. It appeared, however, that the unusual amount of rainfall had softened the ground around the base of the upright supports that held the heavy beams of the first floor, allowing these to sink into the ground. This caused the beams to pull the west wall toward the center, producing the crack. It is possible that the jarring of the earthquake added to this action, giving the small impetus necessary to move the wall. . . . A break also occurred in one of the ovens of the City Bakery.

Daily News, Amarillo, Texas.—The earthquake was felt by hundreds of Wellington citizens this morning, and for a time there was much excitement. There was no damage.

Leader, Wellington, Texas.—A large crack showed up in one of the ovens of the City Bakery early Thursday morning, but no opinion as to its cause was advanced by John Fuller, owner. Mr. Fuller stated that the break was so large that it allowed the heat to escape and rendered baking impossible until it was repaired. It is thought by some that the earthquake felt here at 6:15 Thursday may have caused the break in the oven. The oven is several years old, and its settling could not have caused it, some claim.

Wheeler

Star-Telegram, Fort Worth, Texas.—Slight earth tremors were felt here at 6:15 Thursday morning.

Review, Wheeler, Texas.—The earth tremors felt here at 6:15 last Thursday morning were felt over a territory, etc.

White Deer

Daily News, Amarillo, Texas.—The shock was severe in this section. . . . Citizens were greatly alarmed and at once began placing telephone calls over the country to learn what damage had been done. Buildings were rocked and sleepers suddenly roused from their beds.

Wichita Falls

News, Dallas, Texas.—In one of the hotels a guest who had gone through a California earthquake, left his room and went into the street.

Herald, Greenville, Texas.—Outside of a fallen chimney in this city (Wichita Falls) no damage has been reported.

News, Wichita Falls, Texas.—Outside of a fallen chimney rumor in this city, no damage has been reported anywhere. . . . Although

news reporters located the fallen chimney and verified the report that it fell about the same time that the earthquake quaked, the statement . . . should be taken with the proverbial grain of salt.

Times, Tyler, Texas.—Earth tremors were felt at 6:15 this morning (at Wichita Falls). Persons on the sixth floor of the local hotel said the quake extended over a period of twelve seconds.

Times, Wichita Falls, Texas.—George Garrison, 1302 Burnett Street, said that he felt three or four shocks through a period of about three minutes. He said that his bed shook perceptibly. Others reported two shocks over a period of thirty seconds. . . . In Wichita Falls the tremors were felt more perceptibly on the upper floors of the two hotel buildings, than elsewhere, although a number of persons in the residential sections reported feeling the movement and hearing a jar.

Banner, Greenville.—Earth tremors were felt in Wichita Falls at 6:15 this morning. Persons on the sixth floor of a hotel said the quake extended over a period of two minutes. In other sections of the city persons said they were awakened by the shaking of their beds and the rattling of windows.

Record, Fort Worth.—Two distinct earthquake shocks were felt in Wichita Falls at 6:10 o'clock this morning. Those on the upper floors of the hotels felt the shocks very distinctly, describing them as a peculiar swinging sort of motion of about four or five seconds duration with an interval of about two seconds between the shocks. Although no damage was done, the quakes caused considerable fright in many quarters.

Democrat, Marlin, Texas.—Persons on the sixth floor of a local hotel in Wichita Falls said the tremors extended over a period of two minutes. . . .

Times, Tyler, Texas.—Persons reported that they were awakened by the shaking of their beds and rattling of windows.

Chronicle, Denton.—Earth tremors were felt here (Wichita Falls) at 6:15 this morning. Persons on the sixth floor of a local hotel said the quake extended over a period of two minutes. In other parts of the city many persons reported they were awakened by the shaking of their beds and the rattling of windows.

Times, Wichita Falls, Texas.—J. W. Harris, tailor, who was at work in his shop on the top floor of the Kemp Hotel, said that the first shock lasted about five seconds, the second following after a lapse of about three seconds. "I first felt the table at which I was working move, then my chair seemed as if it was being pushed back. I went into the hall and could see water in the filtering bottle shaking."

ADDENDA

NOTES ON EARLIER EARTHQUAKES IN THE PANHANDLE OF TEXAS

News, Amarillo, Texas, July 31, 1925.—An earthquake shock (was) felt throughout the Panhandle on March 24, 1917. . . . The shock at the time was felt about 1:30 o'clock in the afternoon. Cement on walls of many buildings was cracked, and the school building was severely shaken. However, it suffered no damage. The children became excited, and school was dismissed at once. People who were riding in cars at that time declared they could hardly remain in their seats due to the intensity of the shock.

Panhandle Daily News, Amarillo, Texas, July 31, 1925.—Mrs. C. R. Warren, 1101 Lincoln Street, declared a tremblor hit Amarillo about 6 o'clock one Saturday afternoon in April, 1907, breaking a window in her home. People living along Madison Street said it shook their dishes.

Daily News, Amarillo, July 31, 1925.—A quake was reported as felt in the Panhandle, March 24, 1917, but did little damage. Plastering on walls of several buildings in Panhandle were cracked.

Herald, Panhandle, Texas, July 30, 1925.—The quake recalls a similar shakeup that was distinctly felt in Panhandle (City) and through the northern portion of Carson County and the southern portion of Hutchinson County at 1:30 P.M. on the 24th day of March, 1917. At that time particles of the ceiling plaster of the Panhandle Bank building were shaken loose and fell to the floor.

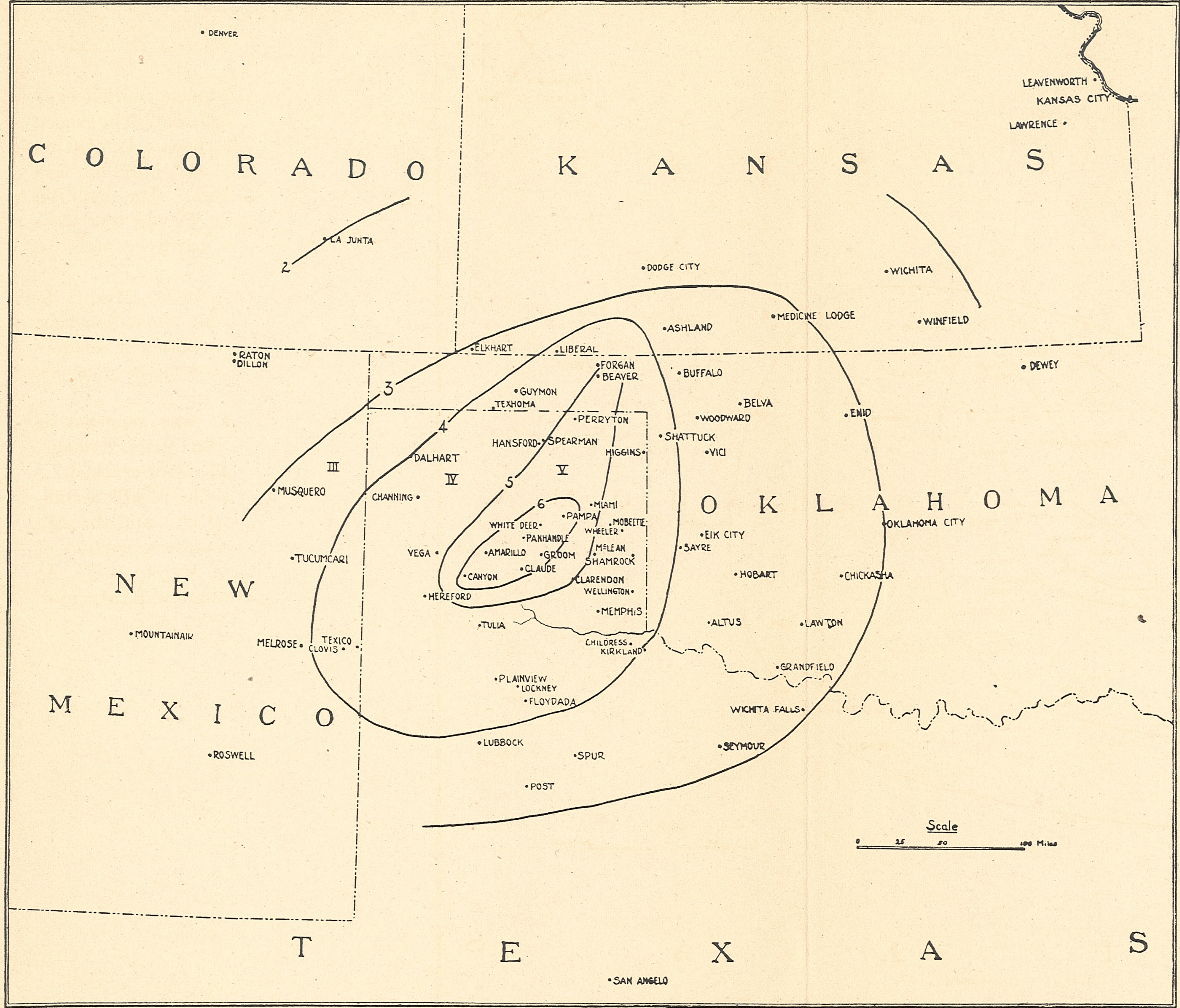


Plate 1. Map showing the places where the Southwestern Earthquake of July 30 was felt and reported and also the approximate location of isoseismals (lines of equal earthquake intensity).